

What is claimed is:

1. A method of making a differential housing having a ring gear integrally formed therein, said method comprising the steps of:

providing a housing blank having an annular rim;

supporting the housing blank in a rotatable holding tool so that the annular rim extends radially outwardly from the holding tool for rotation therewith;

rotating the holding tool; and

applying a gear forming tool for engaging the annular rim during rotation of the holding tool, whereby a plurality of teeth are formed along the annular rim to form the ring gear.

2. The method of making a differential housing of claim 1 further including the step of applying a first thickening tool for engaging the annular rim during rotation of the holding tool wherein the annular rim is plastically deformed to form a lip.

3. The method of making a differential housing of claim 2 wherein the thickening tool rotates in an opposite direction relative to the holding tool.

4. The method of making a differential housing of claim 2 further including applying additional thickening tools to plastically deform the annular rim to a desired lip dimension.

5. The method of making a differential housing of claim 2 wherein the first thickening tool is displaced towards the holding tool for deforming the annular rim.

6. The method of making a differential housing of claim 1 wherein the annular rim is preformed prior to providing the housing blank.

7. The method of making a differential housing of claim 1 further including the step of flow forming the housing blank to form the annular rim prior to supporting the housing blank in the rotatable holding tool.

8. The method of making a differential housing of claim 7 wherein the flow forming step comprises the steps of:

providing lower and upper dies having pre-shaped surfaces, the upper die moveable relative to the lower die;

introducing the housing blank onto the lower die and moving the upper die to compress the blank within a cavity defined by the upper and lower die pre-shaped surfaces wherein an annular rim is formed.

9. The method of making a differential housing of claim 1 wherein the gear forming tool is rotating in an opposite direction relative to the holding tool.

10. The method of making a differential housing of claim 1 wherein the gear forming tool is displaced towards the holding tool for forming the plurality of teeth.

11. The method of making a differential housing of claim 2 wherein first and second rotatable holding tools are utilized successively to hold the housing blank for the step of applying the thickening tool and the step of applying the gear forming tool.

12. The method of making a differential housing of claim 1 further including the step of removing material from the annular rim prior to the step of applying the gear forming tool.